

SRNT
used for
classification

IUBMB Enzyme Nomenclature

EC 1.1.1.158

Common name: UDP-*N*-acetylmuramate dehydrogenase

Reaction: UDP-*N*-acetylmuramate + NADP⁺ = UDP-*N*-acetyl-3-*O*-(1-carboxyvinyl)-D-glucosamine + NADPH + H⁺

For diagram [click here](#).

Other name(s): MurB reductase; UDP-*N*-acetylenolpyruvoylglucosamine reductase; UDP-*N*-acetylglucosamine-enoylpyruvate reductase; UDP-GlcNAc-enoylpyruvate reductase; uridine diphosphoacetylpyruvoylglucosamine reductase; uridine diphospho-*N*-acetylglucosamine-enolpyruvate reductase; uridine-5'-diphospho-*N*-acetyl-2-amino-2-deoxy-3-*O*-lactylglucose:NADP-oxidoreductase

Systematic name: UDP-*N*-acetylmuramate:NADP⁺ oxidoreductase

Comments: A flavoprotein (FAD). Sodium dithionite, sodium borohydride and, to a lesser extent, NADH, can replace NADPH.

Links to other databases: [BRENDA](#), [EXPASY](#), [KEGG](#), [ERGO](#), [PDB](#), CAS registry number: 39307-28-3

References:

1. Taku, A. and Anwar, R.A. Biosynthesis of uridine diphospho-*N*-acetylmuramic acid. IV. Activation of uridine diphospho-*N*-acetylenolpyruvoylglucosamine reductase by monovalent cations. *J. Biol. Chem.* 248 (1973) 4971-1976. [PMID: [4717533](#)]
2. Taku, A., Gunetileke, K.G. and Anwar, R.A. Biosynthesis of uridine diphospho-*N*-acetylmuramic acid. 3. Purification and properties of uridine diphospho-*N*-acetylenolpyruvyl-glucosamine reductase. *J. Biol. Chem.* 245 (1970) 5012-5016. [Medline UI: [4394163](#)]
3. van Heijenoort, J. Recent advances in the formation of the bacterial peptidoglycan monomer unit. *Nat. Prod. Rep.* 18 (2001) 503-519. [PMID: [11699883](#)]

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